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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/775,455

02/10/2004

William J. McDonald

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07/12/2006

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EXAMINER

LUKS, JEREMY AUSTIN

ART UNIT

PAPER NUMBER

2837

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/775,455

Applicant(s)

MCDONALD ET AL.

Examiner

Jeremy Luks

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2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/10/04, 7/21/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 9 recites the limitation "the accumulator" in Line 3. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paulsson (4,805,725) in view of Innes (5,119,344), in view of Sodich (5,018,598).

With respect to Claims 1-2, 4-5 and 8-10, Paulsson teaches a seismic energy source for use while drilling a wellbore, comprising four pistons (Figure 4, #64a-d), each piston (64a-d) disposed between a housing (62) and a corresponding rib (66a-b), each of the pistons (64a-d) hydraulically coupled on one side to a throttling valve (69) and adapted to urge a corresponding rib (66a-b) into contact with the wall of the wellbore (500); and means for selectively controlling a laterally outward force applied to the pistons (66a-d) so as to induce a seismic signal in the wellbore (500) detectable at the Earth's surface (Col. 7, Lines 3-7). Paulsson fails to teach a drive shaft coupled to a drill string; a housing rotatably supported outside the drive shaft, and means for converting relative rotation between the drive shaft and the housing into at least one of hydraulic pressure to charge the accumulator and electrical power to operate electrical circuits

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proximate the source. Innes teaches a drive shaft (Figure 1, #5) coupled to a drill string (Col. 3, Lines 33-34); a housing (14) rotatably supported outside the drive shaft (5), and means for converting relative rotation between the drive shaft (5) and the housing (14) into hydraulic pressure to charge the accumulator or valve (Col 4, Line 66-Col. 5, Line 26), when used in combination with Paulsson. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Paulsson, with the apparatus of Innes in order to lower operating costs.

With respect to Claims 3, 6-7, 11-12, and 15-17, Paulsson is relied upon for the reasons and disclosures set forth above. Paulsson further teaches pressurizing the pistons by sweeping through a selected frequency range (Col. 5, Lines 34-42). Paulsson fails to teach means for selectively controlling comprises a throttling valve, an outlet of which is in hydraulic communication with one side of at least one piston, an inlet of the throttling valve in selectively controlled hydraulic communication with a first reservoir and a second reservoir, the second reservoir having a higher hydraulic fluid pressure than the first reservoir, the other side of the at least one piston operatively triggered into contact with the wall of the wellbore; wherein the second reservoir is charged to a pressure such that operating the throttling valve to select the second reservoir provides a pressure impulse to the piston. Sodich teaches wherein the means for selectively controlling comprises a throttling valve (Figure 2A, #30), an outlet of which is in hydraulic communication with one side of at least one piston (32), an inlet of the throttling valve (30) in selectively controlled hydraulic communication with a first reservoir (20) and a second reservoir (23), the second reservoir (23) having a higher hydraulic fluid pressure than the first reservoir; wherein the second reservoir (23) is

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charged to a pressure such that operating the throttling valve (30) to select the second reservoir (23) provides a pressure impulse to the piston (32) (Figures 2A-2B) (Col 4, Lines 1-32). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Paulsson as modified, with the apparatus of Sodich to provide a self-contained hydraulic reservoir for anchoring the apparatus and pulsating the anchor to create seismic waves, in which the pulsations have discreet frequency content and an exact time span of energy.

With respect to Claims 13-14 and 18, Paulson teaches generating a seismic signal with a wellbore, the seismic signal operable to transmit through the Earth to the Earth's surface; receiving the seismic signal at the Earth's surface; and generating a seismic survey based on the seismic signal, and correlating the seismic signal received at the Earth's surface with a second seismic signal transmitted through a drill string coupled to the downhole steering tool proximate the Earth's surface (Col. 11, Lines 17-33). Paulson fails to teach generating a seismic signal with a downhole steering tool while drilling a wellbore. Innes teaches generating a seismic signal with a downhole steering tool while drilling a wellbore (Col. 1, Lines 4-6). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Paulsson as modified, with the apparatus of Innes in order to take a seismic survey of a wellbore while simultaneously drilling.

### ***Conclusion***

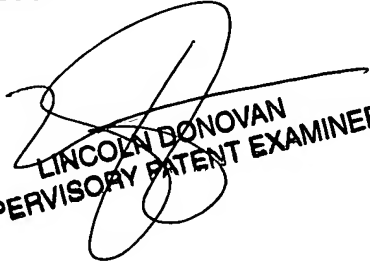
3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pertinent arts of record relating to seismic energy sources for use during wellbore drilling are disclosed in the PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Luks whose telephone number is (571) 272-2707. The examiner can normally be reached on Monday-Thursday 8:30-6:00, and alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeremy Luks  
Patent Examiner  
Art Unit 2837

  
LINCOLN DONOVAN  
SUPERVISORY PATENT EXAMINER